



THE  
ONTARIO WATER RESOURCES  
COMMISSION  
WATER POLLUTION SURVEY  
of the  
VILLAGE OF LANARK

August, 1965



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ONTARIO WATER RESOURCES  
COMMISSION

Report on a  
WATER POLLUTION SURVEY  
of the  
VILLAGE OF LANARK

Division of Sanitary Engineering

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## INTRODUCTION

A water pollution survey of the Village of Lanark was performed on May 17, 1965. Surveys of this nature are made routinely and upon request by the Ontario Water Resources Commission to locate and record sources of existing and potential water pollution. Recommendations are made concerning the abatement of conditions which may adversely affect water quality.

## INTERVIEWS WITH OFFICIALS

Discussions were held with the following officials during this survey:

Mr. O. Rothwell, Reeve;  
Mr. J. E. Paul, Clerk-Treasurer;  
Mr. E. H. Holmes, Medical Officer of Health,  
Village of Lanark;  
Mr. D. Kennedy, Deputy Chief Ranger, Department of  
Lands & Forests, County of Lanark.

The assistance provided by the village officials during this survey is greatly appreciated.

## VILLAGE OF LANARK

The Village of Lanark is located approximately 10 miles north of the Town of Perth in the County of Lanark. According to the 1965 Municipal Directory, the population of the village is approximately 1,528. The assessed acreage of the municipality is 1,021 acres. The developed area of the municipality which is shown on the attached map is small in comparison to the area encompassed by the corporation limits.

The Clyde River flows in a southerly direction through the village. This survey was confined to the river and to the commercial sections of the village which lie near the watercourse.

#### CLYDE RIVER AT LANARK

This watercourse has its source in the north-west portion of the County of Lanark and flows southerly through relatively undeveloped areas. It passes through the Village of Lanark and subsequently empties into the Mississippi River. A control dam is located on the river in the village adjacent to an unoccupied veneer plant.

#### WATER USES

##### Industrial

At the time of this survey, the Glen Ayre Knit Limited and a laundromat were utilizing the river as a source of water supply for industrial requirements.

##### Recreational

The Clyde River is used to some extent for bathing purposes within the village boundaries. The river reportedly supports such game fish as bass, pickeral and pike.

#### WATER SUPPLY

##### Present

Wells and cisterns are utilized as the main source of water supply in the village. Water from the Clyde River is used for non-drinking purposes in a few houses and for operations in

at least two industries. A number of the residents have no wells and drinking water is obtained from neighbours' wells.

A ground-water survey conducted in Lanark in 1959 by the Ground Water Branch of the Ontario Water Resources Commission revealed bacterial pollution to be present in many wells. It was concluded at that time, however, that acceptable ground-water supplies may be available and several test drilling sites were suggested. A preliminary engineering report was also prepared at that time.

The preliminary Certificate of Approval for a municipal water works system for the Village of Lanark was issued by this Commission in March, 1964.

#### SURFACE WATER DRAINAGE

Surface run-off flows discharge to the Clyde River due to the topography of the village.

The locations of the municipal storm sewers are indicated on the appended map. Discharges were noted from two of the outfalls and samples were collected. The Hilliar Street outfall discharges to the river while an outfall north of George Street is directed to a marsh. A characteristic sewage odour was noted at both outfalls.

All samples were collected during a period of low precipitation.

### SANITARY WASTE DISPOSAL

Sewage disposal is effected on a private basis, mainly by the use of septic tank systems. A number of outdoor privies are also in use.

The bedrock in the village generally has only a very shallow overburden and rock outcrops are exposed in many locations at the surface. It was reported that well pollution in some cases may have been due to septic tank effluent gaining access to fissures in the bedrock. According to information received, wastes from an unknown number of houses gain access to storm sewers. The sanitary wastes from the Glen Ayre Knit Limited are directed to a septic tank with the effluent discharged to the river. Dye-testing would be required to locate all private sewers to the river and to determine the extent of unsatisfactory sewage disposal procedures within the village.

### INDUSTRY

Some of the principal industrial firms located in Lanark are listed as follows:

<u>Name of Firm</u>	<u>Product</u>
Glen Ayre Knit Limited	Sweaters
Rothwell Lumber Company	Building supplies
Ark Plywood Limited	(not operating)
Lanark Laundromat	Coin Laundry

With regard to the aforementioned industries, investigations indicate that wastewater resulting from washing and dyeing of sweaters from the Glen Ayre Knit Limited is



discharged directly to the Clyde River. Wash and rinse water from the laundromat is also directed to the river. The Rothwell Lumber Company had no waste discharge. However, it was reported that erosion resulting from spring run-off conditions occasionally carried sawdust into the watercourse.

#### MUNICIPAL REFUSE DISPOSAL SITE

An open face dump utilized by the municipality for refuse disposal is located in an ox-bow of the river in the northern part of the village. Refuse is dumped in close proximity to the river where surface run-off would gain access to the river. Undoubtedly, the present site could not be utilized indefinitely without increasing the probability that refuse material will gain access to the watercourse. A more appropriate site should be considered where the sanitary landfill method of disposal may be employed.

The sanitary landfill method of garbage and refuse disposal eliminates many nuisances experienced with open dumps such as fire hazard, odours, and rat and insect breeding areas. Dumping operations should be confined to areas located at least 150 feet from a watercourse and in addition, a five-foot minimum depth of select material should be provided between the water table and first layer of garbage.

## SAMPLING PROCEDURES

Samples were collected from the Clyde River and from storm and industrial sewer outfalls.

The pertinent laboratory results are appended to this report as is the map showing the locations of sampling points.

## INTERPRETATION AND SIGNIFICANCE OF LABORATORY RESULTS

The analyses employed to determine the quality of the samples were: Biochemical Oxygen Demand (BOD), solids, and the enumeration of coliform organisms.

The BOD of sewage, industrial wastes, or polluted waters is the oxygen required during stabilization of the decomposable organic or chemical material by aerobic biochemical action. A five-day BOD determination with incubation at 20 degrees Centigrade is reported. A high BOD is indicative of organic or chemical pollution.

The analyses for solids include tests for total, suspended, and dissolved solids. The results are reported in ppm. The first test measures both the solids in solution and in suspension. The suspended solids indicate the measure of undissolved solids of organic or inorganic nature in suspension. Land erosion, sewage, and industrial wastes, are significant sources of suspended solids. Suspended solids in water can present difficulties in water purification, and might result in depositions in streams which can interfere with the habitat of aquatic life. The

dissolved solids are a measure of these solids in solution.

The coliform count is employed to obtain an enumeration of coliform organisms. The presence of coliforms indicates pollution by human or animal excrement, or by some non-faecal forms. The number of coliforms is reported per 100 millilitres (ml.) of the sample. The membrane filter technique was used in the examination of these samples. The OWRC objective for surface waters in Ontario is a maximum of 2,400 coliforms per 100 millilitres.

Additional specific analyses are performed, when necessary, to determine the quality of waste discharges. Analyses for anionic detergents measured as ABS and colour dilution was performed on the Glen Ayre Knit Limited industrial discharge.

#### SAMPLE RESULTS

##### Municipal Storm Sewer

The high BOD, suspended solids, and bacteriological coliform concentrations are indicative of sanitary wastes gaining access to municipal storm sewers. The discharge from the Hilliar Street storm sewer (sampling Point MY 52.50-W) has direct access to the river while the George Street storm sewer discharge is directed to a swamp area.

##### Industrial Wastes

The sample results of the processing waste discharge from the Glen Ayre Knit Limited (sampling point MY 52.49-I)

indicate excessive BOD, suspended solids, and bacteriological concentrations. Detergents and dye wastes adversely affect the aesthetic qualities of the river. The discharge of processing wastes of this nature and of the septic tank effluent to the river are not condoned by this Commission.

The Lanark Laundromat was not in use at the time of this survey, consequently samples of the laundry wastes (sampling point MY 52.52-D) were not collected. The discharge of detergent wastes to a watercourse prior to adequate treatment is not considered satisfactory by this Commission.

Care should be taken at the Rothwell Lumber Company to prevent sawdust wastes from gaining access to the Clyde River during periods of increased run-off conditions. It should be noted that deposits of this nature gaining access to a watercourse is a contravention of The Ontario Water Resources Commission Act as well as The Lakes and River Improvement Act.

#### SUMMARY

A water pollution survey of the Village of Lanark was performed on May 17, 1965. Samples were collected from the Clyde River and from storm sewer and industrial discharges thereto.

The laboratory analyses of samples revealed several potential sources of pollution. Sanitary wastes are suspected to be gaining access to the Hilliar Street storm sewer which discharges to the river. An unsatisfactory method of waste disposal

exists at the Glen Ayre Knit Limited wherein sanitary and industrial wastes are directed to the Clyde River. Laundry wastes from the Lanark Laundromat are discharged untreated to the watercourse which is unsatisfactory, and the Rothwell Lumber Company should take steps to prevent sawdust from reaching the river.

A municipal sewage system for the Village of Lanark would be desirable. If unsatisfactory disposal systems cannot be corrected on an individual basis, it is suggested that such a system be considered. It is realized that the cost of a sewage project, combined with the cost of the water works project presently under consideration would place a financial burden on this municipality. It is suggested, however, that a preliminary engineering report for a municipal sewage works be prepared by a consulting engineer. Perhaps such a system could be staged with first attention given to those areas of the village where present waste disposal procedures are most problematical.

The municipal refuse disposal site is located near the Clyde River in the northern part of the village. Although it was not evident during this survey that any of the refuse material was gaining access to the river, the proximity of this site to the watercourse indicates the desirability of selecting a more appropriate location where a sanitary landfill operation could be employed.

## RECOMMENDATIONS

1. The municipality should take steps to eliminate the discharge of inadequately treated wastes to the storm sewers. If adequate waste treatment cannot be achieved on an individual basis, then a consulting engineer should be engaged to prepare a preliminary engineering report on a municipal sewage system to serve those areas where septic tank systems are not feasible.
2. Consideration should be given to the acquisition of a more appropriate refuse disposal site where the sanitary landfill method of disposal may be employed. Such an operation should not be located where refuse material or drainage therefrom can gain access to a watercourse.
3. The Glen Ayre Knit Limited should revise its methods of waste disposal in order to eliminate inadequately treated sanitary and industrial wastes from the river.
4. The Lanark Laundromat should provide an alternative method of disposal which will not endanger the quality of the watercourse.


5. The Rothwell Lumber Company should take steps to prevent sawdust wastes from reaching the river during periods of increased surface run-off.

All of which is respectfully submitted,

District Engineer:

  
J. K. Theil

Approved by:

  
for J. R. Barr, Assistant Director,  
Division of Sanitary Engineering.

Prepared by: W. C. Stevens

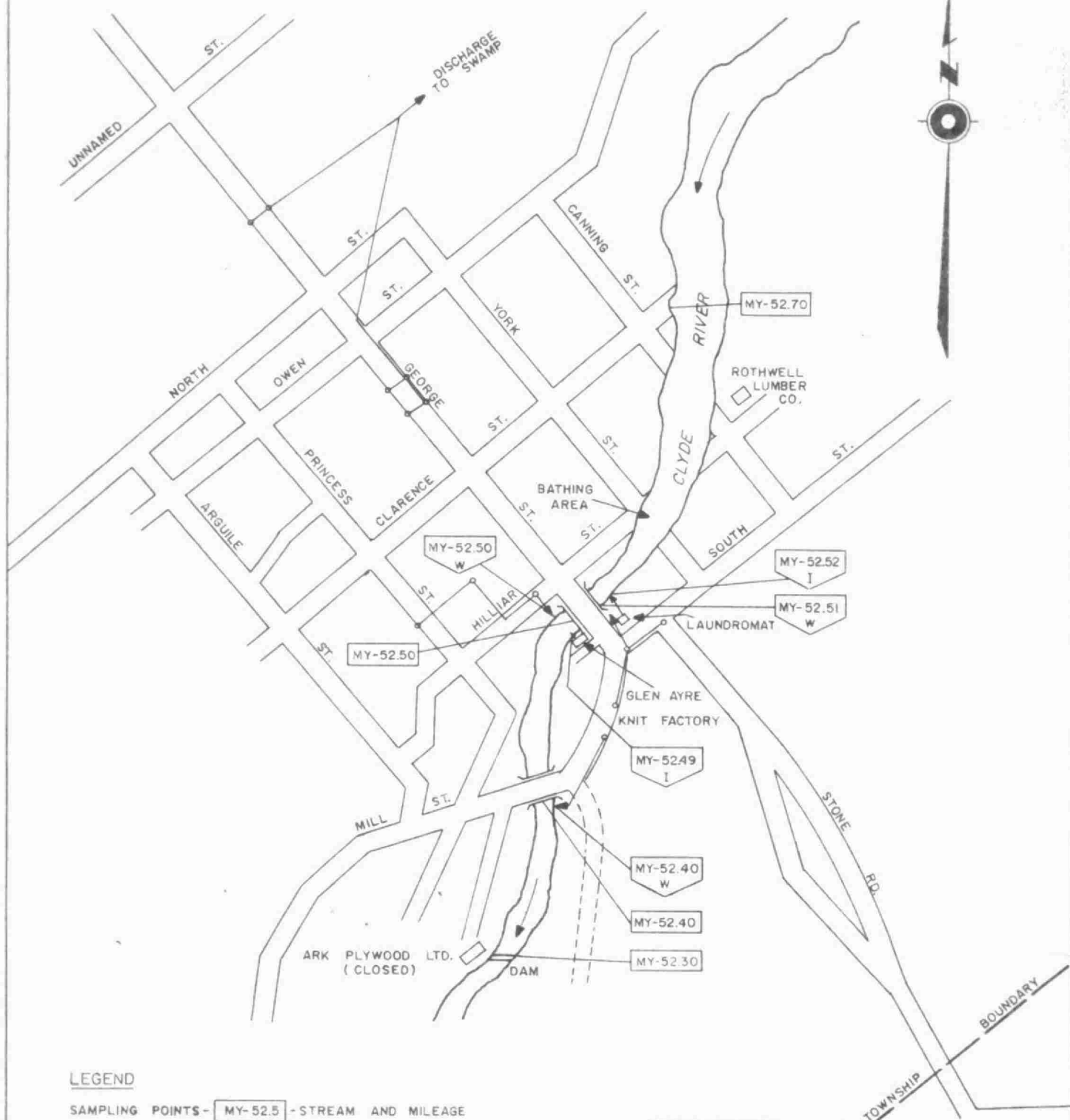
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CLYDE RIVER AND PERTINENT OUTFALLS WITHIN THE

VILLAGE OF LANARK

<u>Sample Point No.</u>	<u>Description of Sampling Point</u>	<u>Date 1965</u>	<u>Coliforms per 100 ml.</u>	<u>5-Day BOD</u>	<u>S O L I D S</u>		
					<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>
MY 52.30	Clyde River at dam	May 18	186	---	---	---	---
MY 52.40	Clyde River at Mill Street bridge	May 18	103	0.4	160	2	158
MY 52.40-W	Storm sewer east bank of Clyde River at Mill Street	May 18		NO FLOW			
MY 52.49-I	Glen Ayre Knit - Detergent wash discharge Anionic Detergents as ABS- 17.0 Colour Dilution - 400 (Hazen Units)	May 18	73,000,000	2,850	3,848	480	3,368
MY 52.49-I	Glen Ayre Knit - Rinse dis- charge following dye process	May 18	0	90	596	122	474
MY 52.50	Clyde River at George St. bridge	May 18	188	0.7	154	6	148
MY 52.50-W	Storm sewer west bank of Clyde River from Hilliar Street	May 18	500,000,000	42	956	136	820
MY 52.51-W	Storm sewer east bank of Clyde River at George Street	May 18		NO FLOW			
MY 52.52-I	Lanark Laundromat - outfall (submerged)	May 18		NO FLOW			
MY 52.70	Clyde River at Clarence Street	May 18	48	1.1	168	1	167
MY 53.10	Clyde River at Rosetta St. bridge	May 18	44	0.5	168	2	166
	Storm sewer discharge to marsh north of George Street	May 18	5,200,000	10.4	778	26	752





# LEGEND

SAMPLING POINTS - MY-52.5 - STREAM AND MILEAGE  
 MY-52.4 - STREAM AND MILEAGE AT OUTFALL  
 W - TYPE OF OUTFALL

OUTFALL SYMBOL LETTERS  
 W - MUNICIPAL STORM SEWER  
 I - INDUSTRIAL WASTE EFFLUENT

— - STORM SEWER  
 o - CATCH BASIN

ONTARIO WATER RESOURCES COMMISSION

## VILLAGE OF LANARK WATER POLLUTION SURVEY 1965

SCALE : 1" = 600'

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